

SILENT TRANSMISSION OF JAPANESE ENCEPHALITIS IN DENGUE FOCI IN NAKHON PHATOM, THAILAND

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JE is one of the most common encephalitides worldwide
symptomatic to asymptomatic ratio: 1 in 300 to 1 in 1,000

Non specific febrile illness to severe meningoencephalitis
fever, reduced consciousness, seizures and focal
neurological signs

Fatality rate: 10% – 30%

with 30% – 50% survivors left with long-term
neurological disability

Annually estimation 30,000 – 50,000 cases

10,000 – 15,000 deaths

Global burden, 2002: 709,000 DALYs lost

1.9 billion people currently live in rural JE prone areas

In Thailand

1993 to 1998:

500–700 cases of Viral encephalitis/year and about 34 JE cases/Y was confirmed by serological dx. *J Health Sci. 9 (2000), 342–348*

2002 to 2004

1,453 cases of Viral encephalitis, 155 were confirmed JE by serological test. *Jpn. J. Infect. Dis. 58(2005), 294–296*

dengue and JE viruses co-circulate

among DEN patients 9% of 177 serum, anti-JE IgM (+);
JE patients 13% of 99 serum and 13% of 37 CSF, anti-DEN
IgM (+). *J of clinical Virology 42 (2008) 75–77*

This study

2007, in Nakhon Pathom

- The detection of anti-JE IgM in serum & CSF of viral encephalitis cases confirmed 5 JE cases.
- Thus, local health authorities carried out an entomological survey in the houses of JE patients, as well as DEN and JE serological among inhabitants living within 3–5 kms.
- 206 serum samples were collected at 3 different geographically located districts, Nakhon Chaisi, Kampangsang, Muang.

Results

- *Recent flavivirus infection was diagnosed for any individual with an IgM result >40 units.*
- *A ratio of dengue IgM to JE IgM <0.91 defined an JEV infection.*
- *A ratio of dengue IgM to JE IgM >1.1 defined an DENV infection.*
- *A ratio of dengue IgM to JE IgM <1.1 and >0.91 defined an unknown flavivirus infection.*

Case ID	JE	DEN	Ratio*	Conclusion
NP-02	0.161	0.597	3.708	DENV
NP-03	0.321	0.611	1.903	DENV
NP-11	0.697	0.057	0.081	JEV
NP-20	0.044	0.618	14.045	DENV
NP-23	1.176	0.042	0.036	JEV
NP-38	0.139	0.733	5.273	DENV
NP-44	0.138	0.723	5.239	DENV
NP-46	0.954	0.691	0.724	JEV
NP-48	0.307	0.726	2.365	DENV
NP-49	0.991	1.569	1.583	DENV
NP-63	0.566	0.015	0.027	JEV
NP-88	0.526	0.06	0.114	JEV
NP-160	0.85	0.025	0.029	JEV
NP-163	0.106	0.608	5.736	DENV
NP-179	0.082	0.638	7.780	DENV

JE cases ID

NP-11	60	Y	N
23	42		N
46	16		N



Mosquito species

Culex vishnui

Cx. tritaeniorhynchus

Cx. gelidus

Cx. quinquefasciatus

Aedes aegypti

JE cases ID

NP-63	71	N
88	38	N
160	13	Y (1997)



Mosquito species
Cx. tritaeniorhynchus
Cx. gelidus
Cx. quinquefasciatus
Cx. fuscocephala